

therapist's ability to discriminate stiffness. Prior to our study, this was not known and so we have clarified rather than clouded this issue. In addition, we have clearly shown that both devices are problematic with respect to patient and therapist comfort. Again, these results provide clarity whereas in the past there was no information on this issue. We think our article will help direct further research because we have provided clear details of our methods and in the article we outline some simple strategies that may improve Superthumb comfort. The paper has generated considerable correspondence, so we feel that our work has brought attention to this important issue.

We would like to thank Laird and Kent for sharing with the readers the detailed steps they went through when developing Superthumb. We understand this process because we have also had to develop instruments, however these were for use in our research studies. The frustrating part of the process is that simple inspection of the finished product reveals none of the sweat and tears that were expended in the prototype development stage.

Having considered Laird and Kent's letter, we still stand by our original conclusion that neither tool, in its current form, is suitable for clinical practice. The only data available on the device is provided by our study and it shows quite clearly that Superthumb does not do what it is claimed to do: both patients and therapists find it less comfortable than manual mobilisation. If you ignored our data, the most optimistic appraisal possible for Superthumb is that it is of unknown value. We have a problem endorsing a product for use in clinical practice if it is of unknown value.

Laird and Kent argue that if we compared Superthumb with another mobilisation, gave the subjects more time to practise and found some naïve subjects, we would find that Superthumb is superior to manual mobilisation. However, we find arguments without data unconvincing. The most robust way to answer such hypotheses would be to conduct additional research. We are currently planning further study in this area and we will consider evaluating Laird and Kent's hypotheses at that time.

Lastly, we would like to correct any misconceptions that may have arisen from Laird and Kent's comment on our study that "What their data does not and cannot provide is any indication as to which perception is a closer approximation to reality." Because we measured both the stiffness of the physical stimuli presented to subjects and the subjects rating of perceived stiffness magnitude our data provides a very clear answer to that issue. For readers who are interested, Figure 2B in our paper shows that the Kneeshaw device allows a perception of stiffness magnitude that is a closer approximation to reality than either the pisiform grip or Superthumb.

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Superthumb Pty Ltd (2002) <http://www.superthumb.net/what.html>. Accessed on May 3, 2002.

The Bobath concept has changed. (Comment on Critically Appraised Paper, *Australian Journal of Physiotherapy* 48: 59.)

We wish to comment on a Critically Appraised Paper, "Motor Relearning Program approach improves short-term motor outcomes and reduces hospital stay after stroke," published in the *Australian Journal of Physiotherapy* (Volume 48, p. 59). This paper (Langhammer and Stanghelle 2000) claims to compare two physiotherapy approaches; the Bobath approach and the Motor Relearning Program. The authors of the study attempted to standardise the two programs according to background literature by preparing a manual describing the main philosophy behind each of the methods and holding workshops to co-ordinate treatments according to the manual. The authors state that the framework of the Bobath concept is based on reflex hierarchical theory. This framework was developed by the Bobaths in the 1940s on the basis of the available understanding of neurology at that time. The Bobath concept has developed significantly over the last 50 years, together with the explosion of knowledge in neuroscience, and is now based on the systems approach to motor control, with neuroplasticity as the primary mechanism for neurological recovery. These developments have been described by Lennon (1996).

As well as being out of date on the current philosophy behind the practice of the Bobath concept, the authors appear to be unaware that the Bobath concept requires skill in its application to the neurological patient. The Bobath concept is studied around the world in short, intensive courses for postgraduate therapists at introductory, basic and advanced levels. The emphasis in these courses is on skill acquisition, both in practical sessions, analysing normal movement, and in supervised practice with clients. Successful use of the Bobath concept requires established skills in the detailed assessment of postural alignment and patterns of muscle activation in multiple motor tasks, in complex problem solving and in interventions that may require highly skilled manual handling. This level of skill can not be achieved by reading a manual and participating in workshops aimed at identifying the differences between the two approaches. We believe that an accurate evaluation of the Bobath concept requires the use of skilled practitioners. We make no apologies for the high level of skill required to practise using the Bobath concept. The ongoing demand for courses from dedicated clinicians seeking to increase their skill level supports this view. We welcome and encourage valid research endeavours investigating the practice of the Bobath concept, provided that it is recognised that a level of proficiency in the skills is necessary.

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Langhammer B and Stanghelle JK (2000): Bobath or Motor Relearning Programme? A comparison of two different

approaches of physiotherapy in stroke rehabilitation. A randomised controlled trial. *Clinical Rehabilitation* 14: 361-369.

Lennon S (1996): The Bobath concept: a critical review of the theoretical assumptions that guide physiotherapy practice in stroke rehabilitation. *Physical Therapy Reviews* 1: 35-45.

Then it's not the Bobaths' concept any more. (Reply to Brock et al, *Australian Journal of Physiotherapy* 48:....)

Australian universities seem to produce a lot of interesting research in the field of physiotherapy. Since Australia is also the "homeland" of the Motor Relearning Program, we would have thought this method was widely used in this part of the world, but now we have the impression that this is not so.

However, it is inspiring to get comments and constructive criticism. It gives us as researchers an opportunity to clear up misunderstandings and to clarify our procedures. There are few randomised and controlled studies within physiotherapy in neurological rehabilitation and we hoped our study would encourage more. We know that research is important in order to get more evidence-based physiotherapy. However, this means that we risk losing some of the theories that our practice is based upon.

In our study we wanted to present two physiotherapy approaches in neurological rehabilitation, the Motor Relearning Program and the Bobath method. In order to do so, we went to the sources of information, the original writers.

The Bobaths have presented their methods and theories in several books (Bobath 1974 and 1990). They were very explicit when they presented the neurophysiological explanations of their method. I had the pleasure of attending several courses led by the Bobaths and Pat Davies in Bad Ragaz, Switzerland. This also included clinical practice under their guidance in Valens with many other physiotherapists. What I remember most vividly is Ms Bobath's strict belief in keeping the method "clean", that is, not incorporating any other hypotheses into the approach. The Bobaths were pioneers in introducing a theoretical framework to their method, based on the research available at that time. They elevated the Bobath method and clinical practice to a scientific level. It has been an inspiration for all of us.

The International Bobath Instructors Training Association cannot, to our knowledge, alter this theoretical framework without altering the approach. Then it ceases to be a Bobath concept and becomes something new, based on another neurophysiological explanation with another approach to practice. This fact is also recognised by other authors (Lennon et al 2002).

We are aware that the Bobath tutors around the world are incorporating new knowledge into the Bobath concept. The

Bobaths have not made these alterations to their basic work nor have they presented any books supporting these changes. Can you make alterations of this sort of an original author without their consent when research changes our understanding? We believe you cannot.

If you incorporate new theories in line with the old ones will this change practice? The Bobath method is associated with inhibition/facilitation techniques. Will this new base of theory be practised or will it mirror the "old" approach? To quote Horak: "The questions a physiotherapist asks herself when treating a neurological patient will reveal the presumptions the physiotherapist has of how the brain controls movement" and "It is of importance that physiotherapists are aware of their own presumptions and the presumptions that neuroscientists have on motor control because these presumptions will form, structure and limit the physiotherapists observations and treatment of neurological patients" (Horak 1991).

As for our study and the practice of physiotherapy, the physiotherapists who took part in the study and who practised the Bobath method were all very experienced physiotherapists. They had 15 to 20 years of practice in neurological rehabilitation and were skilled in assessment and manual handling. They had attended Bobath courses both basic and advanced and were skilled therapists.

To do both approaches justice and to "sharpen" our definitions, we developed the manuals and held workshops, in order to give everybody an opportunity to make their comments. Where necessary, we made alterations within the limits of the original authors description before we started the study so that both methods were practised as identical as possible within the groups. We wanted to do justice to both approaches in order to get a valid result. We believe that we succeeded and that our results are reliable and valid. Normally, it is considered that other groups should confirm our results before today's practice is changed, and our results show that this is needed.

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